3(5)                                              SOV/10-59-2-1/29

AUTHOR:       Zenkevich L.A.

TITLE:        Classification of the Brackish Water Basins, Taking
              as an Example the Seas of the USSR.

PERIODICAL:   Izvestiya Akademii nauk SSSR, Seriya geografiches-
              kaya, 1959, Nr 2, pp 3-11 (USSR)

ABSTRACT:     The author deals with the problem of classifying
              Soviet water basins with a limited salt content.
              The fauna of such basins or sections of them is
              composed of three groups: 1) an euryhaline, 2)
              a stenohaline, and 3) a group, basically associ-
              ated with waters of reduced salt content. The author
              thinks that the fauna of brackish waters and, in
              particular, the third group, will supply data fit
              to be used as criteria for a classification, in
              contradiction to Academician N.M. Knipovich, who,
              in 1938, tried to subdivide the waters into sea and
Card 1/3      brackish waters according to  physical criteria-

SOV/10-59-2-1/29

Classification of the Brackish Water Basins, Taking as an
Example the Seas of the USSR.

correlations of the freezing point and the tempera-
ture of maximum density. The author concludes that:
1) a uniform, general classification system for all
brackish waters is impossible (for each water basin
such a system will have its own character); 2) the
classification of brackish waters according to salin-
ity should take into account biological factors only,
because otherwise it will be unreal and of a merely
formal character; 3) the classification system must
be primarily based on the qualitative and quantita-
tive distribution characteristics of the real bra-
ckish-water fauna (but also in this case, each water
necessarily must have its own classification con-
sidering the composition of the population in con-
nection with the total of present abiotic and biotic
conditions and with the geological past, when this
fauna developed under different conditions). The

Card 2/3

SOV/10-59-2-1/29

Classification of the Brackish Water Basins, Taking as an
Example the Seas of the USSR.

article contains data concerning the real brackish
water fauna of Soviet water basins. In addition to
the above-mentioned scientist, the following Soviet
names are mentioned: G.M. Belyayev, Ya.A. Birshteyn,
V.P. Vorob'yev, A.N. Derzhavin, A.F. Karpevich, Yu.
M. Markovskiy, F.D. Mordukhay-Boltovskoy, V.N. Nikitin,
N.L. Chugunov, S.A. Zernov, N.M. Knipovich, Ye.F.
Gur'yanova, N.N. Romanova. There are 4 graphs, 3
tables and 16 references, 8 of which are Soviet,
6 German, 1 French and 1 English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.M.V.
Lomonosova (Moscow State University imeni M.V.
Lomonosov), Biologo-pochvennyy fakul'tet (De-
partment of Biology and Soil Science)

Card 3/3

ZENKEVICH, L.A.; BOGOYAVLENSKIY, A.N.

Oceanographic investigations in the region of the Kurile-
Kamchatka Trench, May-July 1953. Trudy Inst.okean. 16:24-46
'59.                                    (MIRA 13:3)
(Japanese Trench--Oceanographic research)

TARASOV, Nikolay Ivanovich; ZENKEVICH, L.A., otv.red.; REZNICHENKO, O.G.,
        red.izd-va; SIMKINA, G.S., tekhn.red.

[The living sounds of the sea]  Zhivye zvuki moria.  Moskva, Izd-vo
Akad.nauk SSSR, 1960.  86 p.                          (MIRA 14:1)
            (Sound production by animals)
                (Marine fauna)

30(7)                                S/026/60/000/04/023/070
                                     D048/D006

AUTHORS:      Zenkevich, L.A., Corresponding Member of the AS USSR
              and Shcherbakov, D.I., Academician

TITLE:        The Success of Modern Oceanography

PERIODICAL:   Priroda, 1960, Nr 4, pp 56 - 63  (USSR)

ABSTRACT:     This is a report on the International Oceanographical
              Congress which took place in New York from 1 to 12
              September 1959.  The authors give a detailed survey
              of the problems discussed at the Congress.  There are
              5 photographs, 2 diagrams and 1 Soviet reference.

ASSOCIATION:  AN SSSR (AS USSR) - Zenkevich

Card 1/1

3(9)

S/026/60/000/04/034/070
D048/D006

AUTHOR:      Zenkevich, L.A., Corresponding Member

TITLE:       Man at a Depth of 11,000 meters

PERIODICAL:  Priroda, 1960, Nr 4, p 93  (USSR)

ABSTRACT:    The author mentions that, in 1957, the Soviet scienti-
             fic research vessel "Vityaz'" plumbed a depth of
             11,034 m in the Marianas depression in the Pacific
             Ocean.

ASSOCIATION: AN SSSR (AS USSR), Moscow

Card 1/1

ZENKEVICH, L.A.; FILATOVA, Z.A.

Quantitative biocoenotic distribution of benthos in Far Eastern seas and the northwestern part of the Pacific Ocean and its importance as food of fishes in some fishing areas.  Trudy sov. Ikht. kom. no.10:195-196 '60.                         (MIRA 13:10)
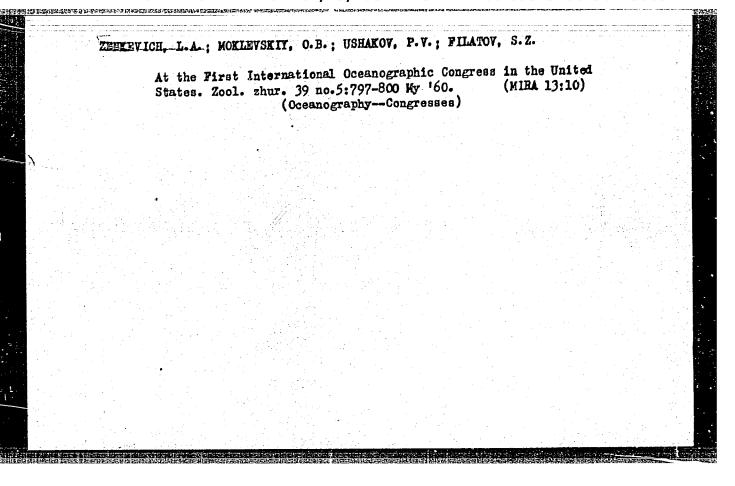
1. Institut okeanologii Akademii nauk SSSR.
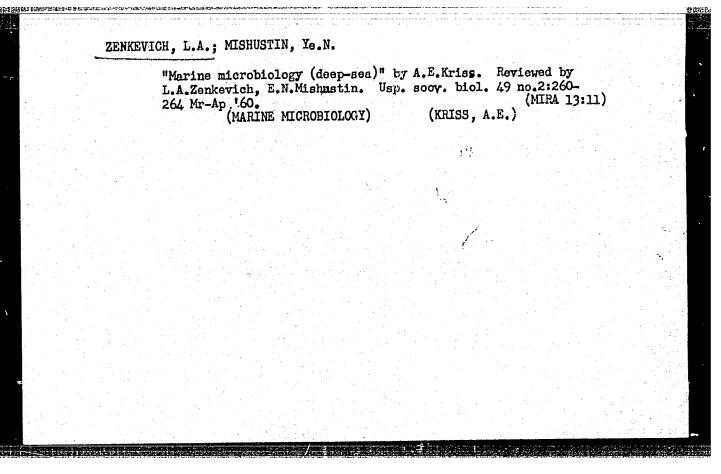       (Pacific Ocean—Benthos)    (Fishes—Food)

SUKACHEV, V.N.; ZENKEVICH, I.A.; VARSANOF'YEVA, V.A.; doktor geol.-miner.
nauk, prof. EFRON, K.M.

Follow Lenin's attitude toward nature. IUn.tekh. 4 no.6:2-5 Je '60.
(MIRA 13:9)

1. Prezident Moskovskogo obshchestva ispytateley prirody (for
Sukachev). 2. Vitse-prezident Moskovskogo obshchestva ispytateley
prirody, chlen-korrespondent AN SSSR (for Zenkevich). 3. Vitse-
prezident Moskovskogo obshchestva ispytateley prirody, chlen-
korrespondent APN RSFSR (for Varsanof'yeva). 4. Chlen Prezidiu-
ma Soveta Moskovskogo obshchestva ispytateley pirody (for Yanshin).
5. Uchenyy sekretar' Moskovskogo obshchestva ispytateley prirody
(for Efron).
                        (Natural resources)

ZENKEVICH, L.A.; MOKLEVSKIY, O.B.; USHAKOV, P.V.; FILATOV, S.Z.

At the First International Oceanographic Congress in the United
States. Zool. zhur. 39 no.5:797-800 My '60.      (MIRA 13:10)
(Oceanography--Congresses)

ZENKEVICH, L.A.; MISHUSTIN, Ye.N.

"Marine microbiology (deep-sea)" by A.E.Kriss. Reviewed by
L.A.Zenkevich, E.N.Mishustin. Usp. sooy. biol. 49 no.2:260-
264 Mr-Ap '60.                                    (MIRA 13:11)
          (MARINE MICROBIOLOGY)          (KRISS, A.E.)

ZENKEVICH, L.A.; FILATOVA, Z.A.

Quantitative distribution of the bottom fauna in the northern
part of the Pacific Ocean at a depth over 2000 m. Dokl.AN
SSSR  133  no.2:457-453  Jl  '60.              (MIRA 13:7)

1. Chlen-korrespondent AN SSSR (for Zenkevich).
          (Pacific Ocean--Benthos)

ZENKEVICH, Lev Aleksandrovich; SMIRNOVA, N.P., red.; RAKITIN, I.T.,
tekhn.red.

[Investigation of the world ocean; current problems] Issledova-
niia mirovogo okeana; sovremennye problemy. Moskva, Izd-vo
"Znanie," 1961. 46 p. (Vsesoiuznoe obshchestvo po rasprostra-
neniiu politicheskikh i nauchnykh znanii. Ser.12, Geologiia i
geografiia, no.11)                                    (MIRA 14:7)

1. Chlen-korrespondent AN SSSR (for Zenkevich).
            (Oceanography)

ZENKEVICH, L.A., otv.red.; SHOKHET, B.S., red.izd-va; ASTAF'YEVA, O.A.,
tekhn.red.

[Report on the First International Oceanographic Congress] Otchet o I
mezhdunarodnom okeanograficheskom kongresse. Moskva, Izd-vc Akad.nauk
SSSR, 1961. 68 p. (Okeanograficheskaia komissiia. Biulleter. , no.7)
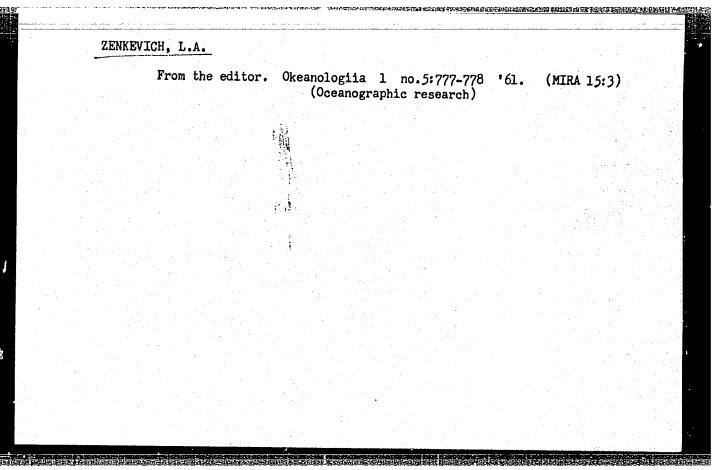
(MIRA 14:6)

(Oceanography--Congresses)

LYAPUNOV, Boris Valerianovich; ZENKEVICH, L.A., red.; POZHIDAYEVA,
M.G., red.; MARAKASOVA, L.P., tekhn. red.

[Ahead of us lies the ocean] Vperedi - okean! Moskva, Izd-vo
"Sovetskaia Rossiia," 1961.   177 p.          (MIRA 15:3)

1. Predsedatel' okeanograficheskoy komissii Akademii nauk SSSR,
chlen-korrespondent Akademii nauk SSSR (for Zenkevich).
                         (Ocean)

ZENKEVICH, L.A.

Problems involved in deep-sea research. Okeanologiia 1 no.3:
382-398 '61.                                    (MIRA 16:11)

1. Institut okeanologii AN SSSR.

ZENKEVICH, L.A.

From the editor.  Okeanologiia  1  no.5:777-778  '61.   (MIRA 15:3)
(Oceanographic research)

ZENKEVICH, L.A.; OSOKIN, S.D., kapitan 2 ranga

Soviet oceanographers. Mor.sbor. 44 no.2:33-44 F '61.
(MIRA 14:4)

1. Chlen-korrespondent AN SSSR Predsedatel' Mezhduvedomstvennoy Okeanograficheskoy komissii pri Prezidiume AN SSSR (for Zenkevich).
2. Deystvitel'nyy chlen Geograficheskogo obshchestva SSSR (for Osokin).
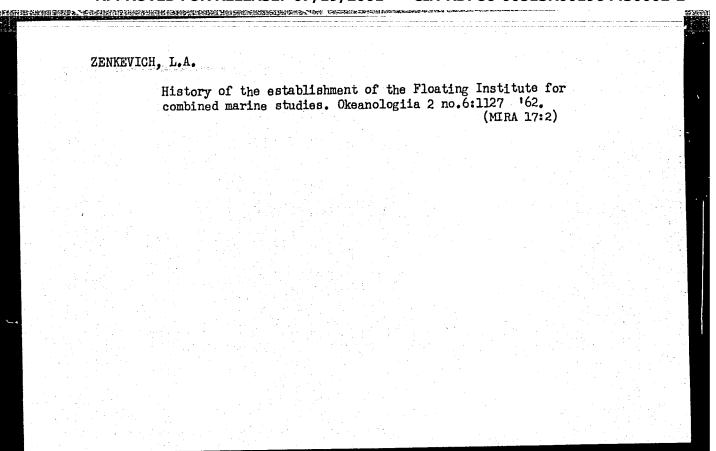(Oceanography)

ZENKEVICH, L.A.

Major event in zoology; important research on a new group of
marine animals. Priroda 50 no.6:48-49 Je '61.        (MIRA 14:5)

1. Chlen-korrespondent AN SSSR.
                                (Pogonophora)

ZENKEVICH, L.A. (Moskva)

Important historical document. Priroda 50 no.7:88-91 Jl '61.
(MIRA 14:6)

1. Chlen-korrespondent AN SSSR.
(Oceanographic research)

ZENKEVICH, L.A.

"Oceanography"; lectures delivered at the plenary sessions of the
First International Oceanographic Congress in New York from August 31
to September 12, 1959. Reviewed by L.A.Zenkevich. Okeanologiia 2
no.4:746-752 '62.                                            (MIRA 15:7)
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ZENKEVICH, L.A.

　　　　History of the establishment of the Floating Institute for
　　　　combined marine studies. Okeanologiia 2 no.6:1127  '62.
　　　　　　　　　　　　　　　　　　　　　　　(MIRA 17:2)

ZENKEVICH, L.

"Discovery" of the ocean.  Priroda Bulg 11 no.5:120-122 S-O '62.

1. Chl.-korr. na AN na SSSR.

ZENKEVICH, L.A.

Stability and variability, unity of contrasts in living organisms.
Nauka i zhizn' 29 no.4:39-41 Ap '62.                    (MIRA 15:7)

1. Chlen-korrespondent AN SSSR.
          (EVOLUTION)     (NUCLEOTIDES)

OSOKIN, Sergey Dmitriyevich; ZENKEVICH, L.A., nauchn. red.;
    LEONOVA, T.S., red.; ATROSHCHENKO, L., tekhn. red.

    [In the depths of the ocean] V puchinakh okeana. Pod
    nauchn. red. L.A.Zenkevicha.  Moskva, Izd-vo "Znanie,"
    1963.  39 p. (Novoe v zhizni, nauke, tekhnike. XII Seriia:
    Geologiia i geografiia, no.17)         (MIRA 16:10)

    1. Deystvitel'nyy chlen Geograficheskogo obshchestva SSSR
    (for Osokin). 2. Chlen-korrespondent AN SSSR (for Zenkevich).
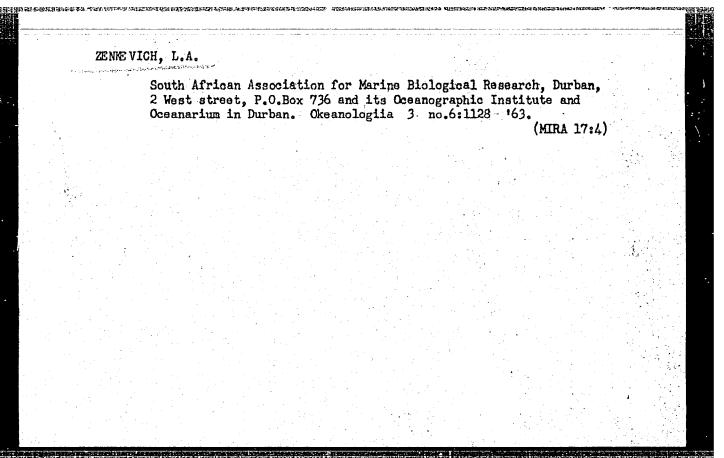             (Oceanographic research)

BIRSHTEYN, Yakov Avad'yevich; ZENKEVICH, L.A., otv. red.; VINOGRADOV,
      M.Ye., red. izd-va; GRIGOR'YEVA, Ye.I., tekhn. red.; RYLINA,
      Yu.V., tekhn. red.

      [Deep-sea isopods in the northwestern part of the Pacific Ocean]
      Glubokovodnye ravnonogie rakoobraznye (Crustacea, Isopoda) severo-
      zapdnoi chasti Tikhogo okeana.  Moskva, Izd-vo Akad.nauk SSSR,
      1963.  212 p.                                      (MIRA 16:2)

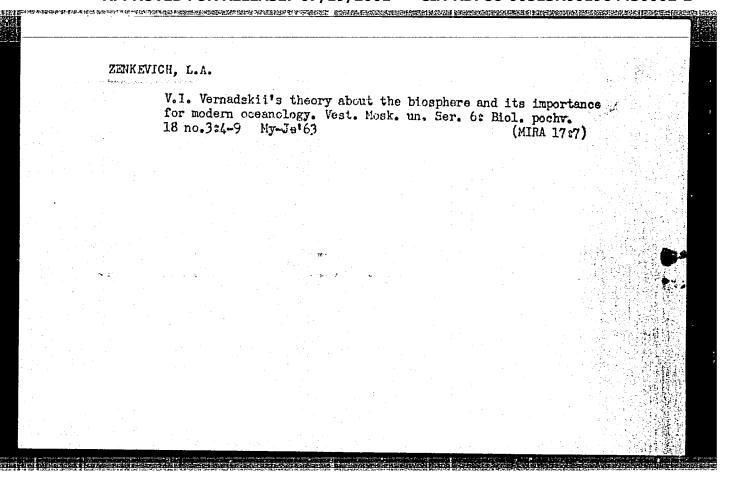      1. Chlen-korrespondent Akademii nauk SSSR (for Zenkevich).
             (Pacific Ocean—Isopoda)

ZENKEVICH, Lev Aleksandrovich, prof.; BELYAYEV, G.M., red.izd-va;
    TIKHOMIROVA, S.G., tekhn.red.

    [Biology of the seas of the U.S.S.R.]Biologiia morei SSSR.
    Moskva, Izd-vo Akad. nauk SSSR, 1963.  738 p,  (MIRA 16:3)
                              (Marine biology)

ZENKEVICH, L.A.

South African Association for Marine Biological Research, Durban,
2 West street, P.O.Box 736 and its Oceanographic Institute and
Oceanarium in Durban. Okeanologiia  3. no.6:1128 - '63.

(MIRA 17:4)

ZENKEVICH, L. A.

Problems of oceanology.  Priroda Bulg  12 no. 6:23-27
N-D '63.

1.  Corresponding Member of the Academy of Sciences of
the U.S.S.R.

ZENKEVICH, L.A.

    V.I. Vernadskii's theory about the biosphere and its importance
for modern oceanology. Vest. Mosk. un. Ser. 6: Biol. pochv.
18 no.3:4-9   My-Je'63                                    (MIRA 17:7)

ZENKEVICH, L.A.

Ocean wealth. Priroda 52 no.4:53-54 '63.          (MIRA 16:4)

1. Chlen-korrespondent AN SSSR.
                              (Marine resources)

ZENKEVICH, L.A.

Problems of oceanography. Priroda 52 no.6:9-16 '63.   (MIRA 16:6)

1. Chlen-korrespondent AN SSSR.
(Oceanography)

ZENKEVICH, L.A., otv. red.

    [Marine flora resources and their use] Zapasy morskikh
rastenii i ikh ispol'zovanie. Moskva, Izd-vo "Nauka,"
1964. 90 p.                (MIRA 17:6)

    1. Vsesoyuznoye gidrobiologicheskoye obshchestvo. 2. Chlen-
korrespondent AN SSSR.

ZENKEVICH, L.A., otv. red.; GAYEVSKAYA, N.S., red.; ZHADIN, V.I.,
red.; KOZHOV, M.M., red.; REZNICHENKO, O.G., red.

[Feeding habits of commercial marine fishes] Pitanie mor-
skikh promyslovykh ryb. Moskva, Izd-vo "Nauka," 1964.
150 p.                                    (MIRA 17:8)

1. Vsesoyuznoye gidrobiologicheskoye obshchestvo.

ZENKEVICH, L.A., otv. red.; GAYEVSKAYA, N.S., red.; ZHADIN, V.I.,
    red.; KOZHOV, M.M., red.; REZNICHENKO, O.G., red.

[Ecology of invertebrates in the southern seas of the
U.S.S.R.] Ekologiia bespozvonochnykh iuzhnykh morei SSSR.
Moskva, Izd-vo "Nauka," 1964. 156 э. (MIRA 17:6)

1. Vsesoyuznoye gidrobiologicheikoye obshchestvo. 2. Chlen-
korrespondent AN SSSR (for Zenkevich).

DIOMIDOV, Mikhail Nikolayevich; DMITRIYEV, Aleksandr Nikolayevich.
　　　Prinimal uchastiye ZAYDEL', G.A., inzh.; ZAYTSEV, V.P.,
　　　kand. tekhn.nauk, retsenzent; OSOKIN, S.D., kapitan 2 ranga
　　　retsenzent; ZENKEVICH, L.A., red.; KAZAROV, Yu.S., red.

　　　[Conquest of the depths] Pokorenie glubin.  Izd.2., ispr. i
　　　perer.  Leningrad, Sudostroenie,  1964.  383 p.
　　　　　　　　　　　　　　　　　　　　　　　(MIRA 18:3)
　　　1. Chlen-korrespondent AN SSSR (for Zenkevich).

BEKLEMISHEV, Vladimir Nikolayevich, prof., zasl. deyatel' nauki;
ZENKEVICH, L.A., otv. red.; NEYMAN, A.A., ved. red.

[Principles of the comparative anatomy of invertebrates] Os-
novy sravnitel'noi anatomii bespozvonochnykh.  Izd.3., pe-
rer. i dop. v dvukh tomakh.  Moskva, Izd-vo "Nauka." Vol.1.
[Promorphology] Promorfologiia.  1964.  431 p.   (MIRA 17:7)

1. Deystvitel'nyy chlen AMN SSSR (for Beklemishev).

BEKLEMISHEV, Vladimir Nikolayevich; ZENKEVICH, L.A., otv. red.;
        NEYMAN, A.A., ved. red.

        [Principles of comparative anatomy of invertebrates] Os-
        novy sravnitel'noi anatomii bezpozvonochnykh.  Izd.3.,
        perer. i dop. v dvukh tomakh.  Moskva, Nauka.  Vol.2.
        [Organology] Organologiia.  1964.  445 p.
                                        (MIRA 17:10)

ZENKEVICH, L.A.

New deep-sea representatives of Echiuroidea from the Indian Ocean
(Choanostoma bruuni gen. n., sp. n., Ikedella (Parabonellia)
bogorovi sp. n.). Trudy Inst. okean. 69:178-182  '64.

(MIRA 17:9)

ZENKEVICH, L.A.

New representatives of deepwater ophiuroids A oxasoma belyaevi
Zenk. sp. n. and Choanostoma filatovae sp. n. (in the Pacific
Ocean. Zool. zhur. 43 no.12:1863-1865 '64    (MIRA 18:2)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta.

ZENKEVICH, L.A. (Moskva); MURAVEYSKAYA, V.S. (Moskva)

Hydraulic method of the locomotion of animals. Priroda 53 no.6:
89-95 '64.                                                    (MIRA 17:6)
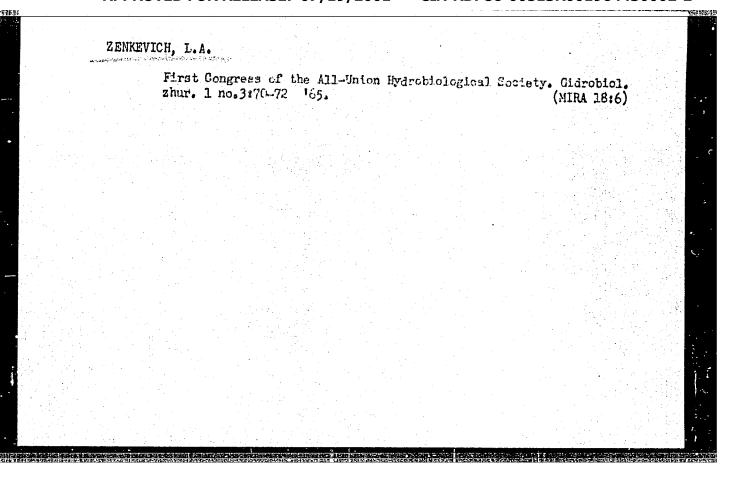
1. Chlen-korrespondent AN SSSR (for Zenkevich).

ZENKEVICH, L.A., otv. red.; BELYAYEV, G.M., red.; VINBERG, G.G.,
     red.; GAYEVSKAYA, N.S., red.; ZHADIN, V.I., red.;
     REZNICHENKO, O.G., red.; SHCHERBAKOV, A.P., red.

[Change in the biological complexes of the Caspian Sea
during the last decade] Izmenenie biologicheskikh
kompleksov Kaspiiskogo moria za poslednie desiatiletiia.
Moskva, Nauka, 1965.  255 p.              (MIRA 18:6)

1. Vsesoyuznoye gidrobiologicheskoye obshchestvo. 2. Chlen-
korrespondent AN SSSR (for Zenkevich).

ANDRUSOV, Nikolay Ivanovich, akademik (1861-1924); SHCHERBAKOV,
        D.I., akademik, glav. red.; YANSHIN, A.L., akademik,
        glav. red.; ZENKEVICH, L.A., otv. red.; BEZRUKOV, P.L.,
        otv. red.

        [Selected works] Izbrannye trudy. Moskva, Nauka. Vol.4
        1965. 402 p.                        (MIRA 18:12)

ZENKEVICH, L.A.

      First Congress of the All-Union Hydrobiological Society. Gidrobiol.
      zhur. 1 no.3:70-72  '65.                  (MIRA 18:6)

ZENKEVICH, L.A.

Loss to foreign oceanography. Okeanologiia 5 no.6:1127  '65.

(MIRA 19:1)

ZENKEVICH, L.A.; BOGOROV, V.G.; SHTOKMAN, V.B.

Semen Vladimirovich Brusvich; on the fiftieth anniversary of
his scientific activity. Okeanologiia 5 no.5:931-932   '65.

(MIRA 18:11)

L 21217-66

ACC NR: AP6011951                          SOURCE CODE: UR/0213/65/005/006/1119/1120

AUTHOR: Zenkevich, L. A.

ORG: none

TITLE: New West German research vessel 'Meteor'                          5

SOURCE: Okeanologiya, v. 5, no. 6, 1965, 1119-1120                          13

TOPIC TAGS: oceanographic ship, oceanography

ABSTRACT: The new West German research vessel "Meteor" has a length of 83 m, a width of 13.5 m and a displacement of 2,700 tons. A photograph accompanies the brief description. It is of relatively small size, which make it efficient and desirable at the modern level of development of oceanology. The rear deck is low, close to the water, to facilitate oceanological observations. The low position decreases the swaying of apparatus which is being pulled up on deck and reduces the danger of their impact against the side. The crew consists of 55 men; scientific complement -- 24. The vessel has five 600-HP diesel engines and a speed up to 14 knots. The ship has an active rudder and innovations to reduce rolling, noise and vibration. The "Meteor" has 12 laboratories: marine physics, chemistry, marine geology, biology and microbiology, echo sounding, gravimetry, radar, low-temperature room, photolaboratory, television (observations to a depth of 2,000 m). There also is a library, workshop and hangar for a helicopter. The first expedition of

Card 1/2                          UDC: 629.123: 629.124.6/9(260)          2

L 21217-66

ACC NR: AP6011951

the new "Meteor" (October 1964-May 1965) was in the northwestern part
of the Indian Ocean in accordance with the International Indian Ocean
Expedition prog... ...d extended to the Red Sea and the Gulf of Persia.
Fifty scientists from 16 institutes, universities and laboratories of the
German Federal Republic participated on the voyage. [JPRS]

SUB CODE: 08 / SUBM DATE: none

Card 2/2 dla

YEVSEYEVA, G.V.; YEVSEYEV, A.M.; ZENKEVICH, L.V.

Thermodynamic properties of alloys of the system cadmium - thallium. Zhur. fiz. khim. 38 no.3:801-802  Mr '64.

(MIRA 17:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

S/189/61/000/006/003/005
D228/D304

AUTHORS:     Yevseyev, A.M., Pozharskaya, G.V. and
             Zenkevich, L.V.

TITLE:       Thermodynamic properties of alloys of cadmium
             with lead

PERIODICAL:  Moscow. Universitet. Vestnik. Seriya II, khimiya,
             16-no. 6, 1961, 28-30

TEXT:     Previous data on the thermodynamic properties of Cd-
Pb alloys are based on e.m.f. measurements at $773°K$. The authors,
however, determined the pressure of saturated vapors in the
temperature range $603 - 643°K$ by the method of G.F. Voronin and
A.M. Yevseyev (Ref. 2: Zh. fiz. khimii, 33, no. 10, 1959). This
entails the measurement of the rate of Cd vaporization and cer-
tain calculations: a) The activity of Cd from

$$a_{Cd} = \frac{V_x \sqrt{T}}{V_0 \sqrt{T}}$$

Card 1/4

Thermodynamic properties ...

S/189/61/000/006/003/005
D228/D304

where $v_x$ and $v_o$ are the rates of vaporization for Cd in an alloy of a given composition and for pure Cd respectively; b) the partial heat of combination from

$$\overline{\Delta H}_{Cd} = 4,575 \cdot \frac{\Delta \lg f_{Cd}}{\Delta 1/T}$$

where $f_{cd}$ is the coefficient of activity for Cd in Pb alloys; and c) the partial entropy of combination from

$$\Delta S_{Cd} = -4,575 \cdot \frac{\Delta (T \lg f_{Cd})}{\Delta T}$$

The corresponding integral values

$$\Delta H_{s\,M} = N_{Pb}\int_{0}^{N_{Cd}} \overline{\Delta H}_{Cd}\, d \cdot \frac{N_{Cd}}{N_{Pb}}\,,\; \Delta S_{s\,M} = N_{Pb}\int_{0}^{N_{Cd}} \overline{\Delta S}_{Cd}\, d \cdot \frac{N_{Cd}}{N_{Pb}}\,.$$

Card 2/4

Thermodynamic properties ...          S/189/61/000/006/003/005
                                      D228/D304

were then found by the graphic integration of the Diugem-Margules
equations. Comparison of the curves of the relationship of the
partial heats of formation for Cd to the concentration of Cd,
and also of the integral heats of formation for alloys at diffe-
rent temperatures, shows that the course of the curves changes
as the temperature falls. In particular, considerable deviation
was noted between the curve of $H = f(x)$ and the one for data
calculated from e.m.f. measurements at $773^{\circ}K$. This variation of
the character of the relationship of the thermodynamic functions
for an alloy to the concentration is believed to be connected
with the change in the alloy's structure – as would, in fact,
be expected from the probable atomic grouping at such a tempe-
rature. There are 1 figure, 1 table and 4 references: 3 Soviet-
bloc and 1 non-Soviet-bloc. The reference to the English-language
publication reads as follows: J.F. Elliott, J. Chipman, Trans.
Faraday Soc. 47, 138 (1951).

Card 3/4

Thermodynamic properties ...       S/189/61/000/006/003/005
                                   D228/D304

ASSOCIATION:   Kafedra fizicheskoy khimii (Department of Physi-
               cal Chemistry)

SUBMITTED:     June 13, 1960

Card 4/4

ZENKEVICH, M. A.

Sweetbrier

Sowing linden, ash, and sweetbrier as unripened seeds. Les i step' 4, No. 6, 1952

9. <u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, ___September___ 1953, Uncl.
2

ZELEVICH, M. A.

Linden

Sowing linden, ash, and sweetbrier as unripened seeds.  Les i step' 4  No. 6, 1952

9.  <u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, ___September 1953, Uncl.

2

ZENKEVICH, M. A.

Ash (Tree)

Sowing linden, ash, and sweetbrier as unripened seeds. M. A. Zenkevich. Les i step 4 No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, ___September__ 1953, Uncl.

2

ZENKEVICH, M.V.; TKACHEVA, M.N.

Nesterov's test as a nonspecific resistance index. Zhur.mikrobiol.
epid.i immun. 31 no.11:63-67 N '60.                (MIRA 14:6)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.
        (ASCORBIC ACID)          (IMMUNITY)

| Card | 1/1 | : | Pub. 86 - 18/36 |

| | | | |
|---|---|---|---|
| Authors | : | Zenkevich, N. L. | |
| Title | : | New device for photographing the bottom of the sea | |
| Periodical | : | Priroda 43/8, 103-105, Aug 1954 | |

Abstract : Submarine photography is presented as a means of exploration of depths that are inaccessible to the diver. A description is given of a 220-volt apparatus which enables one to photograph the bottom of the sea at any angle. Samples of photographs taken at different depths are included.

Institution :  ...

Submitted :  ...

*ZENKEVICH, N.L.*

UDINTSEV, G.B.; LISITSYN, A.P.; KANAYEV, V.F.; ZENKEVICH, N.L.;
GANPANTSEROV, F.I.

Design of a piston core sampler with an automatically
stabilized piston.  Trudy Inst.okean. 19:232-237 '56.

(MLRA 10:2)

(Boring machinery)

ZENKEVICH, N.L. (Moskva);  PETELIN, V.P., kandidat geograficheskikh nauk
            (Moskva).

    Photography of the ocean bottom.  Priroda 45 no.6:95-99 Je '56.
                                                    (MLRA 9:8)
    1. Institut okeanologii Akademii nauk SSSR.
                    (Ocean bottom) (Photography, Submarine)

ZENKEVICH, N. L.

UDINTSEV, G.B.; LISITSYN, A.P.; KANAYEV, V.F.; ZENKEVICH, N.L.; GANPANTSEROV, F.I.

Piston tube with rigid frame for obtaining high quality samples
of marine deposits. Zemlevedenie 4:263-266 '57.          (MIRA 10:9)
                        (Deep sea deposits)
              (Scientific apparatus and instruments)

ZENKEVICH, N.L.

Bottom relief of the northern part of the Sea of Japan. Trudy Inst.
okean. 22:252-259  57.
                    (Japan, Sea of--Ocean bottom)      (MIRA 11:3)

ZENKEVICH, N. L.

20-5-34/48

AUTHORS:  Bezrukov, P. L. ,  Boychenko, I. G.  , Zhivago, A. V. ,  Zenkevich, N. L. ,  Kanayev, V. F.  and  Udintsev, G. B.

TITLE:  New Data on the Rules Governing the Morphology of Submarine Relief (Novyye dannyye o zakonomernostyakh stroyeniya podvodnogo relyefa)

PERIODICAL:  Doklady AN SSSR, 1957, Vol. 116, Nr 5, pp. 841 - 844 (USSR)

ABSTRACT:  The cooperation of the two institutes given under "association" facilitated the obtaining of the characteristic of some outlines of the morphology of the submarine relief, together with the results of foreign expeditions. These outlines were formerly either not to a great extent known or subestimated. Conceptions of the borders of greatest morphological areas or of the forms of first order like the submarine margins of the continents,  the zone of the continental slope, and of the ocean gulf ("lozhe okeana") could be defined exactly; furthermore the rules governing the order of the great  relief forms (forms of second order), as well as the character of the connections in the order of smaller forms could be explained. In the coastal zone and in the shallow water zone the bottom of the sea is nearly everywhere levelled and slopes towards the sea extremely softly. This bottom area is bordered by a bend of the bottom, towards the sea. Behind it the bottom changes into a

Card 1/4

New Data on the Rules Governing the Morphology of Submarine Relief    20-5-34/48

more articulated area. This threshold does not lie deeper than 300
m, on an average of 130 m. The levelled area is towards the  sea
replaced by either the area of the submarine margin of the contin-
ent or by the zone of the continental slope. The latter has con-
siderable inclinations as well as a very complicated relief. The
origin of the levelled area of the bottom in shallow water is to
be assumed  to be in connection with the abrasion-accumulative
levelling processes. The surfaces of the submarine margins of the
continents often cover large areas in comparatively shallow places
of the ocean. As a rule they continue the coastal plains of the
continent. Their breadth and depth vary in vast borders; single
sections lie in a depth of from 1000 to 1500 m. Up to now the tech-
nical terms: continental abyss and continental shelf were not used
precisely enough. The expression continental slope does not re-
flect precisely the fundamental traits of the transition zone from
the continental area to the ocean "sprout" ("lozhe okeanov"). It
would be more precise to call it "zone of the continental slope".
Examples for a very complicated and a more simple structure are
given. The upper margin of the zone of the continental slope cor-
responds either to the exterior margin of the levelled area of the
coast-near shallow water or to the exterior margin of the submarine
marginal zone of the continent. Sometimes there are also compara-

Card 2/4

New Data on the Rules Governing the Morphology of Submarine Relief

20-5-34/48

tively steept steps. In such cases one can speak of a taking part
of the continental marginal zone in the development of the zone of
the continental slope. The lower margin of the zone of the conti-
nental slope is rather clearly characterized by a bend of the bot-
tom area in the transition to the ocean sprout or by a still sharper
bend in the transition to the flat bottom area of the oceanic deep
sea channels which in many regions are bound to the lower part of
the continental slope. The ocean sprout is characterized by a great
variety of forms and relief types: elevations, mountain ridges,
and single mountains occur frequently. The great relief forms (of
second order) are distributed in all parts of the oceanic bottom.
It is difficult to observe the continuations of the great relief
forms of the continent in the levelled part of the coast, they
are, however, better marked in the zone of the continental slope.
In several cases a connection between the relief forms of the zone
of the continental slope and those of the ocean sprout becomes vi-
sible. Towards the land they are only seldom continued on the con-
tinental margin. The great variety of the small ground relief forms
can be comprised in 3 groups: 1.) a relief in which the traits of
the original relief are long time conserved which is covered by a

Card 3/4

New Data on the Rules Governing the Morphology of Submarine Relief

20-5-34/48.

> sedimentary cover of the same thickness. 2.) the levelling relief the original unevenness of which is filled in ; the thickness of the sediments increases here in the depressions, and 3.) a levelled relief in which the sediments cover all unevenness of the original relief; in the depressions the layers are much thicker and broken at the elevations. There are 7 references, 4 of which are Slavic.

ASSOCIATION:  Institute for Oceanology, Institute for Geography AN USSR
(Institut okeanologii, Institut geografii Akademii nauk SSSR)

PRESENTED:  May 13, 1957, by I. P. Gerasimov, Academician

SUBMITTED:  June 11, 1957

AVAILABLE:  Library of Congress

Card 4/4

BEZRUKOV, P.L.; ZENKEVICH, N.L.; KANAYEV, V.F.; UDINTSEV, G.B.

Submarine mountains of the Kurille Islands. Trudy Lab.vulk. no.13:71-88
'58.                                                    (MIRA 12:3)
(Kurille Islands--Ocean bottom)

ZENKEVICH, N. L.

    "Ocean Bottom Photography at Depths".
report to be submitted for the Intl. Oceanographic Cong. New York City,
31 Aug - 11 Sep 1959.

(Inst. of Oceanology, Moscow)

3(9)

SOV/10-59-3-11/32

AUTHOR:        Zenkevich, N.L.

TITLE:         New Data About the Bed Relief of the Sea of Japan

PERIODICAL:    Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1959,
               Nr 3, pp 86-88 (USSR)

ABSTRACT:      The author presents a new bathymetric chart of the Sea of
               Japan drafted according to measurements carried out by the
               Soviet expedition vessel "Vityaz'" between 1949 and 1955.
               The depths were registered on the tape of an automatic sound-
               ing device.  Altogether, a line 19,800 miles (35,650 km)
               long was checked.  The isobathes on the chart are drafted
               on the basis of 500-m-interval measurements.  There is 1
               chart, 1 graph, and 6 references, 5 of which are Soviet and
               and 1 Japanese.

ASSOCIATION:   Institut okeanologii AN SSSR (the Institute of Oceanology
               AS USSR).

Card 1/1

GANSON, P.P.; ZENKEVICH, N.L.; SERGEYEV, I.V.; UDINTSEV, G.B.

Maximum depths of the ocean. Priroda 48 no.6:84-88 Je '59.

(MIRA 12:5)

1.Institut okesnologii AN SSSR, Moskva.
(Deep-sea sounding)

Papers submitted for the 10th Pacific Science Congress, Honolulu, Hawaii 21 Aug-6 Sep 1961.

ZENKEVICH, N.L.

Cameras for deep-sea floor photography.  Trudy Inst. okean.
44:66-80 '60.
        (Ocean bottom)     (Photography, Submarine)
                                       (MIRA 14:2)

ZENKEVICH, N.L.

Recent data on the bottom relief of the northeastern part of the
Pacific Ocean.  Trudy Inst.okean.  45:5-21  '61.        (MIRA 15:2)
(Pacific Ocean--Submarine topography)

VYALOV, O.S.; ZENKEVICH, N.L.

Traces of a crawling animal on the floor of the Pacific.  Izv.AN
SSSR. Ser.geol. 26 no.1:52-58 Ja '61.                         (MIRA 15:6)

1.  Institut geologii poleznykh iskopayemykh AN USSR, L'vov i
Institut okeanologii AN SSSR, Moskva.
                    (Pacific Ocean—Palenotology)

ZENKEVICH, N.L.;  SKORNYAKOVA, N.S.

Iron and manganese on the ocean floor.  Priroda 50 no. 2:47-50
. F '61.                                                      (MIRA 14:2)

1. Institut okeanologii AN SSSR, Moskva.
   (Pacific Ocean—Iron)      (Pacific Ocean—Manganese)

S/169/62/000/008/056/090
E202/E192

AUTHORS:     Klenova, M.V., and Zenkevich, N.L.

TITLE:       Geological works in the western part of the
             North Atlantic

PERIODICAL:  Referativnyy zhurnal, Geofizika, no.8, 1962, 4,
             abstract 8 V 19. (Tr. Morsk. gidrofiz. in-ta. AN SSSR,
             25, 1962, 142-186).

TEXT:       The results obtained during the voyage of the Research
Vessel "M.Lomonosov" in the fields of marine geology according to
the IGY plan are given.  The basic directions of the studies were
as follows:  the study of the sea topography and the geomorpho-
logical interpretation of the collected data, and the study of
suspended matter in the waters of the sea.  During the entire
voyage of the ship, sampling of the bottom with a direct type
impact tube and bottom scoop type "Okean" was carried out, together
with echo sounding and also sampling of the suspended matter.
The region of the studies was contained between approximately
45° and 10° N.  The ground sampling was carried out predominantly
over the depth in excess of 4000 m.  The topography and geological
Card 1/3

Geological works in the western ...      S/169/62/000/008/056/090
                                         E202/E192

structure of the region was described on the basis of the above
data.  It was noted that the results of the studies of
"M.Lomonosov" in the vicinity of the eastern coast of N.America
are in full agreement with the data given by the American marine
geologists.  The mechanical analysis of the sediments and analysis
of the composition of the aleuritic fraction carried out on the
ship gave quantitative characterisation of the more important
peculiarities of the sediments of the region studied.  Mechanical
analysis of the surface layer using microscopic method based on
the use of the graticule eye piece of Glagolev has shown that this
method may be fully utilised to define quantitatively the
composition and designation of the sediment according to the
dynamic classification.  The analysis of the matter contained in
the surface layer of the sediment together with the data obtained
from earlier voyages led to the compilation of a distribution
diagram of the mineral grains in the aleuritic fraction, which
confirmed the paramount importance of the scattering of mineral
material from the mainland in the process of sediment formation.

Card 2/3

Geological works in the western ...    S/169/62/000/008/056/090
                                       E202/E192

The biogenic components begin to play a noticeable role in the
composition of the sediment only in those places where the
influence of the detrital material is no longer dominant.  The
distribution within the sediments of various biogenic components
is closely connected with the hydrological conditions.  The
decrease of the detrital components in the aleuritic fraction
down to 6.4% was observed only in the region of the Central
Atlantic Ridge over a distance of above 2000 miles from the nearest
(South American) land.  In the eastern direction, irrespective of
the great distance from land, the quantity of the mineral grains
in the aleuritic fractions does not decrease.
42 references.

[Abstractor's note:  Complete translation.]


Card 3/3

UDINTSEV, G.B.; AGAPOVA, G.V.; BERSENEV, A.F.; BUDANOVA, L.Ya.; ZATONSKIY,
L.K.; ZENKEVICH, N.L.; IVANOV, A.G.; KANAYEV, V.F.; KUCHEROV, I.P.;
LARINA, N.I.; MAROVA, N.A.; MINEYEV, V.A.; RAUTSKIY, Ye.I.

New relief maps of the bottom of the Pacific Ocean. Geofiz. biul.
no.14:159-167 '64.                                              (MIRA 18:4)

ZENKEVICH, P. I.

"Voprosy razmernoy tipologich v prilozhenii k zadacham promyshlennosti."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences,
Moscow, 3-10 Aug 64.

ACCESSION NR:  AT4019727                    S/2759/63/000/005/0125/0133

AUTHOR:  Zenkevich, P. R.; Milovanov, O. S.

TITLE:  Influence of reflection on the operation of a magnetron feeding a linear
electron accelerator with power feedback input

SOURCE:  Moscow. Inzhenerno-fizicheskiy Institut. Uskoriteli (Accelerators), no.
5, 1963, 125-133

TOPIC TAGS:  reflection, magnetron linear accelerator, electron accelerator,
power feedback input

ABSTRACT:  The use of power feedback input in traveling-wave linear electron ac-
celerators is highly advantageous.  The power feedback input node has special
properties and strongly influences the band characteristics of the accelerator.
In earlier papers by other authors the power feedback input node was considered
to be completely matched, but at the shoulder of the accelerator there is a non-
uniformity corresponding to a jump in the active impedance or in the purely re-
active shunt conductance.  In the present paper a more exact equivalent circuit
of the high-frequency channel of the accelerator was adopted.  This allows us to
take into account the influence of the properties of the high-frequency channel
of the accelerator with power feedback input on the frequency stability of the

Card    1/2

ACCESSION NR: AT4019727

magnetron which feeds such an accelerator. Band characteristics are discussed for linear electron accelerators, both with and without feedback input. For the former, the frequency drift of the magnetron was derived. Orig. art. has: 20 formulas and 2 figures.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering-Physics Institute)

SUBMITTED: 00

DATE ACQ: 19Mar64

ENCL: 00

SUB CODE: NP, EE

NO REF SOV: 002

OTHER: 002

Card    2/2

L 2151-66    EWT(m)/EPA(w)-2/EWA(m)-2    IJP(c)    GS

ACCESSION NR: AT5007960                          UR /0000/64/000/000/0882/0885

AUTHOR: Zenkevich, P. R.; Koshkarev, D. G.

TITLE: Suppression of forced oscillations in ring accelerators

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 882-885

TOPIC TAGS: high energy accelerator, forced vibration, particle beam

ABSTRACT: The forced oscillations of accelerated particles occupy a considerable part of the chamber in ring accelerators. In the design and construction of large-energy accelerators the problem of decreasing the chamber aperture acquires foremost importance, because the size of the aperture determines in significant degree the cost of the accelerator and the very possibility of its creation. Recently in this connection methods have been developed for the automatic control of beam parameters according to the data on the beam, which permit a sharp reduction in the magnitude of the forced oscillations of the beam center of gravity and, consequently, the aperture of the accelerator chamber, (Burshteyn, E. L., et al. DAN 141, 590 (1961). In the present work it is proposed to decrease the amplitude of oscilla-

Card 1/4

L 2151-66
ACCESSION NR: AT5007960                                    O

tions of the beam center of gravity by the use of a system for correcting the beam
position with negative feedback in accordance with the derivative. Such a system
causes increased damping of the forced oscillations of the beam center of gravity,
if the forcing force depends weakly upon the time. In the general case of the ac-
tion upon the beam of a forcing force of arbitrary frequency, the control system
must be stable, taking into account the beam frequency properties and the feedback
circuit. Analysis of system stability takes into consideration first the motion of
a particle in the accelerator chamber, upon which an arbitrary disturbance acts
varying in time with frequency ω. The equation of betatron oscillations for this
case (in the smoothed approximation) can be written in the form

$$r''_{xx} + 2ur'_x + \Omega^2 r = \Phi(x) e^{i\omega t}, \qquad (1)$$

where $x$ is the distance along the chamber axis, and

$$\Phi(x+L) = \Phi(x); \qquad (2)$$

here $L$ is the length of the accelerator vacuum chamber. The variables $x$ and $t$ for
each particle are connected by the explicit relation

$$x = v(t - t_0). \qquad (3)$$

Card 2/4

L 2151-66

ACCESSION NR:  AT5007960

Introduction of conditions (2) and (3) into equation (1) gives:

$$r'' + 2ar' + \Omega^2 r = \sum_{k=-\infty}^{+\infty} C_k e^{i\frac{2\pi k}{L}x + i\left(\frac{x}{v}+t_0\right)\omega} \; . \; (4)$$

The steady-state solution of equation (4) can be written in the form

$$r(x,\; t_0) = e^{i\omega t_0} \sum_{k=-\infty}^{\infty} \frac{C_k e^{i\Omega_k x}}{\Omega^2 - \Omega_k^2 + 2ia\Omega_k} \; , \; (5)$$

where    $\Omega_k = 2\pi \frac{k}{L} + \frac{\omega}{v}$ .

Expression (5) describes the trajectory of an arbitrarily chosen particle. In or-
der to obtain the form of the orbit in an arbitrary location according to azimuth
as a function of time, it is necessary to eliminate $t_0$ from relations (3) and (5):

$$r(x,\; t) = e^{i\omega t} \sum_{k=-\infty}^{\infty} \frac{C_k e^{i\frac{2\pi k}{L}x}}{\Omega^2 - \Omega_k^2 + 2ia\Omega_k} \; . \qquad (6)$$

In the report these expressions are used to investigate a concrete control system
with negative feedback in the derivative, which is calculated with the aid of suit-
able processing of the data from transducers of beam position. The beam position

Card 3/4

L 2151-66

ACCESSION NR: AT5007960

transducers measure the position of the orbit of the accelerated particles at a given location of the chamber i.e., the quantity $r(x, t)$. These transducers permit calculation of two different derivatives of $r$ with respect to $x$: $r'_x(x, t)$ and $r'_x(x, t_0)$. These derivatives do not coincide if the disturbance depends upon time." "In conclusion the authors thank V. V. Vladimirskiy for his valued comments." Orig. art. has: 20 formulas.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki GKAE SSSR (Institute of Theoretical and Experimental Physics, GKAE SSSR)

SUBMITTED: 26May64          ENCL: 00          SUB CODE: NP

NO REF SOV: 002              OTHER: 000

Card 4/4

ACCESSION NR: AT4019724                       S/2759/63/000/005/0075/0090

AUTHOR: Zenkevich, P. R.; Shal'nov, A. V.

TITLE: Choice of a feed system and calculation of the variational characteristics of linear accelerators of energies of 10 and 15 Mev with power feedback input

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli (Accelerators), no. 5, 1963, 75-90

TOPIC TAGS: linear accelerator, accelerator, electronaccelerator, linear electron accelerator

ABSTRACT: The paper develops approximate methods for estimating the parameters of linear electron accelerators with power feedback input; it compares the basic parameters of several feed systems within broad ranges of power generators, of energies, and of flows of accelerated particles; and, finally, it gives a basis for the choice of a feed system and of the structural parameters and gives an estimate of the variational characteristics of the Y-13 and Y-18 accelerators developed at the Inzhenerno-fizicheskiy institut (Engineering-Physics Institute). Orig. art. has: 8 figures, 5 tables and 34 formulas.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Engineering-Physics Institute)

Card   1/2

ZENKEVICH, P.R.; SHAL'NOV, A.V.

Selection of the feeding pattern and calculation of the variational
characteristics of 10-15 Mev. linear accelerators with reversible
power input.  Uskoriteli  no.5:75-90  '63.                (MIRA 17:4)

ZENKEVICH, P.R.; MILOVANOV, O.S.

Effect of reflections on the performance of a magnetron feeding
a linear electron accelerator with feedback.  Uskoriteli  no.5:
125-133  '63.                                         (MIRA 17:4)

AUTHORS:      G. T. and M. R.

TITLE:        Nauchnaya konferentsiya Moskovskogo inzhenerno-fizicheskogo
              instituta (Scientific Conference of the Moscow Engineering
              Physics Institute) 1962

PERIODICAL:   Atomnaya energiya, v. 13, no. 6, 1962, 603 - 606

TEXT:   The annual conference took place in May 1962 with more than 400
delegates participating. A review is given of these lectures that are
assumed to be of interest for the readers of Atomnaya energiya. They are
following:  A. I. Leypunskiy, future of fast reactors; A. A. Vasil'yev,
design of accelerators for superhigh energies; I. Ya. Pomeranchuk,
analyticity, unitarity, and asymptotic behavior of strong interactions at
high energies; A. B. Migdal, phenomenological theory for the many-body
problem; Yu. D. Piveyskiy, deceleration of medium-energy antiprotons in
matter; Yu. M. Kogan, Ya. A. Iosilevskiy, theory of the Mössbauer effect;
M. I. Ryazanov, theory of ionization losses in nonhomogeneous medium;
Yu. B. Ivanov, A. A. Rukhadse, h-f conductivity of subcritical plasma;

Card 1/4

35

Nauchnaya konferentsiya...                    S/089/62/013/006/019/027
                                              B102/B186

design of 30-Mev electron linear accelerator; Ye. G. Pyatnov, A. A. Glaskov,
V. G. Lopato, A. I. Finogenov, G. N. Skepskiy, V. D. Seleznev, experimental
characteristics of low-energy electron linear accelerators; G. A. Zeytlenk,
V. M. Levin, S. I. Piskunov, V. L. Smirnov, V. K. Khokhlov, radiocircuit
parameters of ЛУЭ (LUE)-type accelerators; G. A. Tyagunov, O. A. Val'dner,
B. M. Gokhberg, S. I. Korshunov, V. I. Kotov, Ye. M. Moroz, accelerator
classification and terminology; O. S. Milovanov, V. B. Varaksin, P. R.
Zenkevich, theoretical analysis of magnetron operation; A. G. Tragov,
P. R. Zenkevich, calculation of attenuation in a diaphragmated waveguide;
Yu. P. Lazarenko, A. V. Ryabtsev, optimum attenuation length for linear
accelerator; A. A. Zhigarev, R. Ye. Yeliseyev, review on trajectographs;
I. G. Morozova, G. A. Tyagunov, review on more than 500 ion sources;
M. A. Abroyan, V. L. Komarov, duoplasmatron-type source; V. S. Kusnetsov,
A. I. Solnyshkov, calculation and production of intense ion beams;
V. M. Rybin (Ye. V. Armenskiy), inductive current transmitters of high
sensitivity; V. I. Moroza, G. A. Tyagunov, kinetic description of linear
acceleration of relativistic electrons; A. D. Vlasov, phase oscillations
in linear accelerators; E. L. Burshteyn, G. V. Voskresenskiy, beam field
effects in the waveguide of an electron linear accelerator; R. S. Bobovikov,

Card 3/4

L 23127-66    EWT(m)/EWP(1)    IJP(c)

ACC NR: AP6001564                 SOURCE CODE: UR/0120/65/000/006/0019/0023

AUTHOR: Zenkevich, P. R.; Koshkarev, D. G.

ORG: Institute of Theoretical and Experimental Physics, GKAE (Institut teoreticheskoy i eksperimental'noy fiziki GKAE); Institute of the Physics of High Energies, GKAE, Moscow (Institut fiziki vysokikh energiy GKAE)

TITLE: System for correcting forced oscillations in accelerators with derivative-type feedback

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 19-23

TOPIC TAGS: circular accelerator, particle accelerator, electronic feedback, particle beam

ABSTRACT: The stability and optimal parameters of the derivative-type correction system were considered in an earlier authors' work (International Accelerator Conference, 1963). In the present article, the problems of the number and deployment of derivative-yielding sensors, of the errors involved, and the establishment of a closed orbit when the correction system is turned on are explored. It is also suggested that the derivative-type correction system be used for aligning the first

Card 1/2                                    UDC: 621.384.6

L 23127-66

ACC NR: AP6001564

orbit; also, the efficiency of the system in correcting the first orbit and a closed orbit is investigated. It is found that: (1) The above correction system can reasonably well suppress the resonant spectrum harmonics with a rather few (approximately equal to Q) corrective magnets; (2) This correction system may also prove useful in linear accelerators; (3) The system can suppress any coherent instability of the beam, whatever the physical cause for the instability might be. Orig. art. has: 39 formulas.

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Card 2/2

USSR/Soil Science. Organic Fertilizers                               J-4

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 43857

Author   : Kedrov-Zikhman O.K.; Zenkevich, T.I., Drupen' N.I.
Inst     : The Institute of Socialized Agriculture of the Academy of
           Sciences, Bielorussian SSR.
Title    : The Action of Organic Fertilizers in Crop Rotation with'
           Perennial Grasses in Connection with the Liming of Peat
           Podzolic Soil

Orig Pub : Sb. nauchn. tr. In-ta sots. s. kh. AN BSSR, 1956, vyp. 4,
           37-59

Abstract : In this experiment made on peat podzolic soil (pH 4.5) at the
           experimental base of the Institute of Socialized Agriculture
           of the Academy of Sciences Bielorussian SSR, a study was
           made of the effect of organic fertilizers and lime, applied
           in 1946 on a cover crop in doses per 1 ha. of 40 t. of
           manure, 40 and 80 t. of peat, 8 t. of lime in combinations
           of organic fertilizers and lime, on the yields of grain
           crops, potatoes and grasses in 9-field crop rotations.
Card     : 1/2

ABSTRACT: The dynamic balancing of large turbo-alternator rotors
          under production conditions is a very laborious operation,
          since these rotors behave as flexible shafts. The number
          and size of alternators being manufactured is increasing,
          so that the problem is becoming urgent. It also arises in
          other industries, for example in the manufacture of
          aviation gas turbines. The methods that are used in
          balancing rigid shafts are not well suited to balancing
          flexible shafts. Published information on the balancing
          of flexible rotors is scanty and the methods proposed are
          not sufficiently accurate. Effective balancing of a
          flexible rotor involves simultaneous removal of dynamic
          reactions, and reduction of dynamic deflections and
          bending moments over a wide speed range. This can only be

Card 1/6

SOV/110-59-8-12/24

The Balancing of Flexible Rotors.

achieved by removing the initial out-of-balance, for example, by using counter-balances as near as possible in weight to the initial out-of-balance and placed in a diametrically opposed position. A method of determining and removing the out-of-balance distributed over the length of a flexible rotor has now been developed and is the subject of Author's Certificate No 114957, 1956. The theory of the method is first considered. An arbitrary initial out-of-balance distributed over the length of the shaft may be projected on to two mutually perpendicular planes rigidly connected to the rotating shaft, as shown in Fig 1. These projections may be represented as functions of the position on the shaft. Each of the functions may then be resolved into Fourier series corresponding to the shapes of the natural oscillations of the rotor. In the simplest case of a shaft of constant section, with rigid supports, the resolution takes the form of expression (1). If the function of distribution of out-of-balance coincides with one of the shapes of the natural oscillations, then the elastic line of the rotor at any speed is similar to this

Card 2/6

SOV/110-59-8-12/24

The Balancing of Flexible Rotors.

out-of-balance function but lies in a plane at some angle
to the plane of out-of-balance.  Therefore, projections
of the dynamic deflections of the initial out-of-balance
may be expressed in terms of the coefficients of the
resolutions of the initial out-of-balance and two other
coefficients.  For example, the projections of dynamic
deflections corresponding to expression (1) are given by
expression (2).  The method of determining the coefficients
in these equations is then explained.  In practice, it is
only necessary to make the determinations at the critical
speeds.  The dynamic deflections due to the initial out-of-
balance at a number of planes of rotation are measured on
two axes substituted in expressions of the type of
expression (2), giving a system of linear algebraic equa-
tions which, when solved, give the initial out-of-balance
of the rotor.  A first trial system of counter-balances is
then fitted;  ideally it takes the form of a distributed
load of the same shape as the elastic line of the rotor at
the first critical speed, though in practice concentrated

Card 3/6

The Balancing of Flexible Rotors.                    SOV/110-59-8-12/24.

loads are used. When the corresponding measurements have
been made the first trial loading is removed and replaced
by a second one. A series of equations similar to
expressions (3) and (4) can then be drawn up. The method
of solving these equations is explained. It is then
necessary to select an arrangement of concentrated loads
equivalent to the continuous distributed load that would
give ideal balancing. If there are many loads they may be
arranged uniformly over the length of the rotor, each
being proportional to the ordinate of the shape of the
natural oscillations at the appropriate point. The proce-
dure to be adopted when the number of loads is limited is
explained. There is no objection to locating the balancing
loads in a number of planes because this does not increase
the number of sections at which it is necessary to make
measurements of deflections. The method was checked
experimentally on a dynamic model of a rotor of a large
turbo-generator prepared for the investigation of critical
speeds. A photograph of the model rotor in the test rig
Card 4/6     is given in Fig 2. The measuring apparatus and procedure

The Balancing of Flexible Rotors.                    SOV/110-59-8-12/24

is described with reference to the diagram in Fig 3. After
preliminary tests of the model, rational trial load
distributions were determined, and details of these are
given. Deflections were measured at three sections on
the length of the shaft and at three speeds. Numerical
data are recorded for three particular cases. Test results
of the amplitude of dynamic deflections of the model rotor
with symmetrical unbalance before and after balancing are
plotted in Fig 5. A corresponding curve for a model with
symmetrical and asymmetrical unbalance is given in Fig 6
and corresponding curves for a model with general out-of-
balance in Fig 7. It is concluded from the test results
that within the limits of accuracy of the measuring
equipment and procedure the dynamic deflections of the model
rotor are a linear function of the magnitudes of the loads
in the trialsystems selected. It was found that the
balancing systems obtained for different speeds coincided
satisfactorily: in all cases their installation on
unbalanced rotors gave an important reduction in the dynamic

Card 5/6

The Balancing of Flexible Rotors.                    SOV/110-59-8-12/24

deflections at all sections and over the entire speed
range considered.  The method described can serve as the
basis of an industrial method of balancing turbo
generators or other flexible rotors.
There are 7 figures and 4 references 1 of which is Soviet,
1 German, 1 Swedish and 1 Czech.

SUBMITTED: January 12, 1959.

Card 6/6